

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-017400
 (43)Date of publication of application : 20.01.1998

(51)Int.Cl.

C30B 29/40
 C30B 25/14
 // H01L 21/205

(21)Application number : 08-171972

(71)Applicant : SUMITOMO ELECTRIC IND LTD

(22)Date of filing : 02.07.1996

(72)Inventor : MATSUSHIMA MASATO
 AKITA KATSUSHI
 SHIMAZU MITSURU
 MIURA YASUNORI

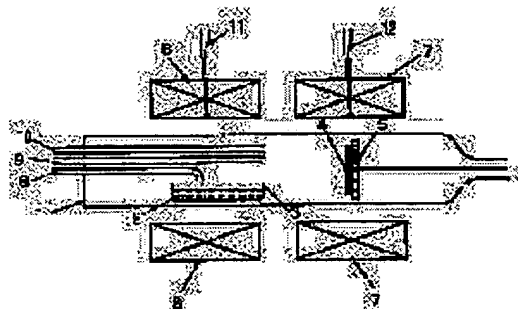
(54) METHOD FOR MAGNESIUM-DOPED NITRIDE TYPE III-V GROUP COMPOUND SEMICONDUCTOR CRYSTAL

(57)Abstract:

PROBLEM TO BE SOLVED: To surely supply an organomagnesium compound onto a substrate without causing thermal decomposition of the compound and to enable doping of the substrate with a prescribed amount of Mg by specifying the raw materials of a group V element, a group III element and Mg at the time of performing vapor phase epitaxial growth of the semiconductor crystal with a hot-wall method.

SOLUTION: In this method, NH₃ or hydrazine, a gaseous mixture of HCl or gaseous chlorine and an organic compound of a group III element, or a gaseous halide of a group III element, and a gaseous organomagnesium compound are used as a group V element raw material, a group III element raw material, and an Mg raw material respectively and these raw materials are supplied onto a substrate in a reaction tube using a hot-wall method. For example, a gaseous mixture of HCl and H₂ is supplied through a nozzle 8 onto molten Ga

2 in a boat 3 placed in a high temp. region of a reaction tube 1 to allow Ga to react with HCl and to form gaseous GaCl and then, the formed gaseous GaCl are supplied onto a substrate 4. The gaseous GaCl is allowed to react with a gaseous mixture of NH₃ and bis(ethylcyclopentadienyl)Mg, which is supplied through a nozzle 10, to grow an Mg-doped GaN crystal on the substrate 4.



BEST AVAILABLE COPY

LEGAL STATUS

[Date of request for examination] 23.06.2003

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the
examiner's decision of rejection or application
converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of
rejection]

[Date of requesting appeal against examiner's
decision of rejection]

[Date of extinction of right]

BEST AVAILABLE COPY

Copyright (C); 1998,2003 Japan Patent Office